Scope of Negation, Syntactic Movement, and Structure of Japanese Negative Sentences

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1. Introduction

This paper is aimed at examining scope interaction of quantified NPs (henceforth QP) and the negative morpheme *nai* in various types of construction in Japanese and providing a coherent account of the phenomena. I argue, assuming the Minimalist framework of Chomsky (1993, 1995), that the relative scope order of a QP and a negative is subject to a syntactic constraint that is defined in terms of the most widely assumed configurational relation *c-command* and that the relevant scope interpretation is crucially affected by such syntactic processes as i) syntactic derivation of the QP, ii) movement driven by the Case-checking of the QP, and iii) X^0-movement.

One crucial point that I take sides with is the assumption that the Quantifier Raising (May (1977, 1985), among others) does not exist as a syntactic operation in the grammar (Kitahara (1992) etc.). This assumption will be provided with an empirical ground if we can successfully show that the scope phenomena that the QR would have to treat are given an adequate account without recourse to the QR. I show that the facts of QP/negative scope interaction provide an empirical basis for this assumption.

2. Observation

It has sometimes been observed that a QP and a negative enter into scope interaction (Kato (1985), Kato and Ota (1986), Homma (1989), etc.) The first fact to be accounted for in this paper is that the object QP and a negative in a simple sentence such as in (1) enter into scope interaction:

(1) a. Taroo-wa subete-no hito-o seme-nak-atta[1,2,3]

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[1] Note that the availability of the NEG>ALL reading fluctuates from one kind of quantifier to another. A universal quantifier *daremo-o* ('everyone') seems a little harder to negate than *subete-no* N' ('all-N'). It is totally impossible to have the NEG>ALL reading with *dono hito-mo* ('whichever person') in a simplex sentence, which is treated in Hasegawa (1991) as an "affirmative polarity item." I use *subete-no* N' to examine the relevant scope properties since I find it the easiest to negate of all the universal quantifiers.

[2] I gloss the morpheme *(at)ta* as an aspectual marker denoting perfectivity, despite the general convention of treating it as a "past tense" morpheme. I discuss this in Section 4.3.

Taro-Top all-of person-Acc blame-Neg-Perf
'Taro did not blame all the people'

b. Taroo-wa subete-no hito-*WA* seme-nak-atta
Taro-Top all-of person-Cont blame-Neg-Perf[4]

A number of native speakers of Japanese agree that (1a) has the "total negation" (ALL>NEG) reading while (1b) has the "partial negation" (NEG>ALL) reading. In other words, the object QP in (1a) takes wide scope over the negative, while that in (1b) takes narrow scope. The interpretations of the examples in (1a) and (1b) are represented as (2a) and (2b), respectively:

(2) a. [$\forall x$:x=a person] NEG (Taro blamed x)
(All the people are such that Taro did not blame him. = Taro blamed none of the people.)

b. NEG [$\forall x$:x=a person] (Taro blamed x)
(Not all the people are such that Taro blamed him. = Taro blamed some of the people, but not all.)

Homma (1989) observes that (1a) can also have the NEG>ALL reading although it is more naturally interpreted as ALL>NEG. This observation may perhaps sound somewhat dubious to some speakers since the NEG>ALL reading in (1a) is at best slightly marginal. However, the point I would like to emphasize here is that even those speakers who can only marginally realize the NEG>ALL reading in (1a) DO admit a real contrast in the possibility of the partial negation reading between (1a) and the following example:

(3) subete-no hito-ga Taroo-o seme-nak-atta
all-of person-Nom Taro-Acc blame-Neg-Perf
'All the people didn't blame Taro'

In (3), we have a subject QP and a negative. A number of speakers, including myself, have reported that (3) does not have the partial negation (NEG>ALL) reading in contrast to (1a). It only yields the interpretation in (4):[5]

(4) [$\forall x$:x=a person] NEG (x blamed Taro)
(None of the people blamed Taro.)

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[3] Abbreviations: Acc = Accusative, Cl = Classifier, Comp = Complementizer, Cont = Contrastive, Dat = Dative, Ger = Gerundive, Infl = Inflection, Mod = Modal, Neg = Negative, Nom = Nominative, Imp = Imperfective, Pass = Passive, Perf = Perfective, Top = Topic

[4] The capitalized topic marker *WA* is intended to stand for what has been called the "contrastive topic marker." See Hoji (1985) for details.

[5] There are cases where the subject of a transitive verb can take narrower scope than the negative. See Footnote 22 for some discussion.

The second fact to be analyzed is that the subject QP of certain classes of predicates can take narrow scope with respect to a negative, in contrast to (3). Consider:

(5) Subject of a passive sentence:

a. subete-no hito-ga seme-rare-nak-atta
all-of person-Nom blame-Pass-Neg-Perf
'All the people weren't blamed' (ambiguous)

b. subete-no gakusei-ga (Ziroo-niyotte) nagur-are-nak-atta
all-of student-Nom Ziro-by hit-Pass-Neg-Perf
'All the students weren't hit (by Ziro)' (ambiguous)

(6) Subject of unaccusative verbs:[6]

a. subete-no ki-ga taore-nak-atta
all-of tree-Nom fall-Neg-Perf
'All the trees didn't fall down' (ambiguous)

b. subete-no gakusei-ga sono heya-ni hair-anak-atta
all-of student-Nom that room-Dat enter-Neg-Perf
'All the students didn't enter the room' (ambiguous)

(7) Subject of a *te-iru* sentence:[7]

a. subete-no kodomo-ga kame-o izime-te i-nak-atta
all-of child-Nom turtle-Acc bully-Ger be-Neg-Perf

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[6] Some speakers have reported that the subject of such unergative intransitive verbs as *hasiru* ('run') and *warau* ('laugh') may take scope narrower than the negative:

(i) subete-no hito-ga hasir/waraw-anak-atta
all-of person-Nom run/laugh-Neg-Perf
'All the people didn't run/laugh'

Indeed I feel it easier to negate the subject in (i) than in (3). Still there is felt to be a real contrast between (i) and (6) with respect to the availability of the partial negation reading: the NEG>ALL reading is significantly less salient in (i) than in (6). It is not clear to me why the NEG>ALL reading is better with intransitives than with transitives and I will leave this matter for future research.

[7] But see Mihara (1997), who observes that the negative may take wide scope over the subject QP if *te-iru* denotes "duration of an action/state", but not if *te-iru* denotes "duration of a result" His examples are:

(i) Duration of an action ("progressive"):
Taroo-dake-ga hasit-te i-na-i
Taro-only-Nom run be-Neg-Imp
'Only Taro is not running' (ambiguous)

(ii) Duration of a state ("progressive"):
kimi-dake-ga nayan-de i-na-i
you-only-Nom worry be-Neg-Imp
'Only you are not worrying' (ambiguous)

(iii) Duration of a result ("perfective"):
yasumono-no sara-dake-ga ware-te i-na-i
cheap-of dish-only-Nom break be-Neg-Imp
'Only cheap dishes have broken' (ONLY>NEG)

I come back to this in Footnote 23.

'All the children weren't bullying the turtle' (ambiguous)

b. subete-no gakusei-ga sensei-o hihansi-te i-nak-atta
all-of student-Nom teacher-Acc criticize-Ger be-Neg-Perf
'All the students weren't criticizing the professor' (ambiguous)

The third fact is that the object QP in an embedded clause can or cannot take wide scope over the matrix negative, depending on the type of construction in which they are found:

(8) Object in a complement *to* clause:

a. boku$_i$-wa [e_i party-de subete-no ryoori-o tabe-yoo-to]
I-Top party-at all-of dish-Acc eat-Mod-Comp
omow-ana-i
think-Neg
'I do not intend to eat all the dishes at the party'

b. boku-wa [Aya-ga subete-no hon-o yon-da-to] omow-ana-i
I-Top Aya-Nom all-of book-Acc read-Comp think-Neg
'I do not think that Aya read all the books'

(9) Object of a causative sentence:

a. boku-wa Taroo$_i$-ni [e_i subete-no ronbun-o yom]-ase-nak-atta
I-Top Taro-Dat all-of paper-Acc read cause-Neg-Perf
'I did not make Taro read all the papers'

b. Taroo-wa Aya$_i$-ni [e_i subete-no sara-o araw]-ase-nak-atta
Taro-Top Aya-Dat all-of plate-Acc wash-cause-Neg-Perf
'Taro did not make Aya wash all the dishes'

The examples in (8) are unambiguous: the QP in the embedded clause cannot take wide scope over the negative. On the other hand, the sentences in (9) are ambiguous between the relevant interpretations: the object QP in (9a, b) may or may not take scope over the matrix negative.[8,9] Thus the meaning of (9a), for example, can be represented as either (10a) or (10b):

(10) a. NEG [$\forall$x:x=a paper] (I made Taro read x)
('I did not make Taro read all the papers')

b. [$\forall$x:x=a student] NEG (I made Taro read x)
('I made Taro read none of the papers')

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[8] The scope property of the object QP in the complement clause of a causative sentence has been brought to my attention by Takamichi Aki (personal communication).

[9] An anonymous TES reviewer has pointed out that the wide scope reading of the object QP in (9) is possible only under the "let" reading ("I did not allow Taro to read all the papers.", "I did not allow Hanako to wash all the dishes.") of the sentences. For me, however, this difference in the availability of the relevant readings is not clear.

The descriptive paradigm is made more complicated if we examine so-called *te iru* sentences. Consider the following examples:

(11) a. Taroo-wa subete-no seito-o seme-te i-nak-atta
Taro-Top all-of pupil-Acc blame-Ger be-Neg-Perf
'Taro was not blaming all the pupils'

b. Aya-wa subete-no hito-o mi-te i-nak-atta
Aya-Top all-of person-Acc look-Ger be-Neg-Perf
'Aya was not looking at all the pupils'

The object QP in both examples does not take wide scope over the negative. (11a), for example, has the interpretation in (12a), but not the one in (12b):[10]

(12) a. NEG [$\forall x$:x=a pupil] (Taro was blaming x)
(Taro was blaming some of the pupils, but not all.)

b. *[$\forall x$:x=a pupil] NEG (Taro was blaming x)
(Taro was blaming none of the pupils.)

These facts are summarized as follows:

(13)	Subj>Neg	Neg>Subj
a. agentive predicate:	+	-
b. unaccusative predicate:	+	+
c. passive:	+	+
d. *te-iru* sentence:	+	+

(14) Wide scope of an object QP over a negative:

a. when the QP is clause-mates with a negative: yes

b. when the QP and a negative are separated by a clause boundary:
i) *to* clause: no
ii) causative: yes

c. when the verb accompanies *te-iru*: no

This descriptive paradigm naturally calls for a syntactic account since it is obviously such syntactic factors as "embeddedness" that affect the scope interpretation of a QP and a negative. I show in what follows that the scope relation of a QP and a negative is read off from, and is constrained by, the syntactic structure in which the QP and the negative are found. But how are Japanese negative sentences structurally built up? Since this is a question that is crucially related to the questions addressed above and it seems hardly noticed in the literature, it is worth devoting the next section to answering this question, before we give accounts of the relevant scope relation.

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10 Masaki Sano (p.c.) points out that the object QP may take scope over the negative in (11) under the "perfective" reading of *te iru*, in which case (11a), for example, is paraphrased as "Taro had not blamed all the people." I return to this in Footnote 17.

3. Structure of Negative Sentence in Japanese

One of the key hypotheses in the recent work in generative syntax is that the single-membered functional category that had been labeled as IP in the *Barriers* framework (Chomsky (1986)) is split up into two distinct functional categories, namely Agr(eement)P and T(ense)P (Pollock (1989), Chomsky (1988)). In addition, it has been assumed that a negative morpheme is accommodated in still another functional projection headed by the node Neg(ative) (ibid.). Integrating one still more assumption that the subject and the object each have their own AgrP to be accommodated in, we can represent the "pre-Spell-Out" structure of a sentence like (15) as in (16), where the subject *John* has raised to [Spec Agr-sP] and the object *Mary* has not yet raised but will be moved to [Spec Agr-oP] at LF (Chomsky (1993, 1995)):

(15) John did not kiss Mary.

(16) $[_{Agr\text{-}sP}\ [_{NP}\ John]_i\ [_{Agr\text{-}s'}\ [_{TP}\ t'_i\ [_{NegP}\ not\ [_{Agr\text{-}oP}\ [_{VP}\ t_i\ [_{V'}\ kiss\ Mary]]]]]]]$

One might hypothesize a corresponding structure for a Japanese negative clause; the simplex negative sentence in (17) might be represented as (18):

(17) Taroo-ga sono-hon-o yom-anak-atta
Taro-Nom that-book-Acc read-Neg-Perf
"Taro did not read the book"

(18) $[_{Agr\text{-}sP}\ [_{NP}\ Taroo\text{-}ga]_i\ [_{Agr\text{-}s'}\ [_{TP}\ t'_i\ [_{NegP}\ [_{Agr\text{-}oP}\ [_{VP}\ t_i\ [_{V'}\ sono\ hon\text{-}o\ yom]]]$
$-anak\ _{NegP}]\text{-}atta\ _{TP}]]]$

However, I would like to claim that (18) is not an adequate syntactic structure for the Japanese negative sentence. There are pieces of empirical evidence that lead us to cast doubt on the hypothetical structure in (18). First, some linguists have pointed out that the negative morpheme in Japanese can really be classified as a lexical item, namely an adjective (Nakau (1973), McGloin (1976)). The negative morpheme shows the pattern of inflection identical to that of adjectives. Consider:

(19) a. taka-i / taka-ku-naru
tall-Infl tall-Infl-become
'be tall'/ 'become tall'

b. benkyoosi-yasu-i / benkyoosi-yasu-ku-naru
study-easy-Infl study-easy-Infl-become
'be easy to study'/ 'become easy to study'

When the adjectives *taka* and *yasu* are not followed by any morphemes they take the ending form (*syuusikei*), which ends with the inflection *-i*. When a verb fol-

lows, on the other hand, they take the adpredicative form (*ren'yookei*) and end with *-ku*. A verb, however, cannot take the *-ku* form, as shown in the following:

(20) benkyoosuru / *benkyoosu-/si-ku-naru
study study-Infl-become
'study' / 'come to study'

The negative exhibits the same inflectional pattern as the adjectives in (19):

(21) benkyoosi-na-i / benkyoosi-na-ku-naru
study-Neg-Pres study-Neg-Infl-become
'not study' / 'come to not-study'

As (21) shows, a negative morpheme ends with *-i* when not followed by any morphemes, but takes the *-ku* form when followed by a verb.

Another argument for treating the negative as an adjective comes from the distributional properties of the negative. The nominalizer *-sa* can follow an adjective or an adjectival verb (*keiyoo doosi*) but not a verb, as long as the adjective or the adjectival verb denotes a gradable property:

(22) a. taka-i / taka-sa
high-Infl high-ness 'be high'/ 'height'
b. atataka-i / atataka-sa
warm-Infl warm-ness 'be warm'/ 'warmth'
c. benkyoosi-yasu-i / benkyoosi-yasu-sa
study-easy-Infl study-easy-ness
'be easy to study'/ 'easiness to study'

The negative morpheme does share this property. It can immediately precede the nominalizer *sa* ('-ness') as long as the negative plus the immediately preceding verb phrase denotes a gradable property of the subject. Consider:

(23) Taroo-no benkyoosi-na-sa-wa minna-ga sinpaisi-te iru
Taro-of study-Neg-*sa*-Top everyone-Nom worry is
'Everyone is worried about the degree to which Taro does not study'

A bare verb phrase cannot precede *-sa*, even if the verb phrase denotes a gradable property:

(24) *Taroo-no benkyoosi-sa-wa minna-ga yorokon-de iru
Taro-of study-*sa*-Top everyone-Nom pleased is
'Everyone is pleased with the degree to which Taro studies'

We can correctly predict this distributional property of the negative if we assume that the negative belongs to the grammatical category of Adjective. This argument alone, of course, leaves open the possibility that the negative might be an adjectival verb, but this possibility is denied by the inflectional property of the negative that we saw earlier: the negative ends with *-i* when not followed by any

morphemes, while an adjectival verb ends with *-da* in just the same environment (e.g. *sizuka-da* ('be quiet'), *akiraka-da* ('be clear')).

The second point, which is more important, is the hierarchical order of the projection of the negative morpheme *nai*, which is AP, and other functional categories such as Agr-oP. I would like to propose the following syntactic structure for part of sentence (17):[11]

(25) [[$_{NP}$ Taroo-ga][$_{Agr\text{-}oP}$ [$_{AP}$ [$_{VP}$ sono hon-o yom] -anak $_{AP}$] $_{Agr\text{-}oP}$] -atta]

That is, Agr-o takes as its complement the projection of the negative AP, which in turn selects a bare VP as its complement.[12] There is a piece of evidence for this structure. Consider:

(26) a. Aya-no hon-no/?*-o yom-ana-sa-wa yuumei-da
Aya-of book-of/-Acc read-Neg-*sa*-Top famous-be
'The degree to which Aya does not read books is well-known'

b. Taroo-no eigo-no benkyoo-no/*-o si-na-sa-wa mondai-da
Taro-of English-of study-of/-Acc do-Neg-*sa*-Top problem-is
'The degree to which Taro does not study English is a problem'

As we saw above, the nominalizer *-sa* can be preceded by a negative VP as long as the VP plus the negative denotes a gradable property of its subject. What is important here is that the objects in (26) cannot bear the Accusative Case particle: it must appear with the Genitive marker *-no*. This can be accounted for with our proposed hierarchical order of Agr-oP and the projection of *nai*. Let us assume the relevant fragment of (26a), for example, as follows:

(27) *[[[hon-o yom $_{VP}$] -ana $_{AP}$] -sa $_{NP}$]

We can correctly explain the ungrammatical variant of (26a) as follows. The object NP *hon-o* cannot have its Accusative Case feature checked since there is no Case-checker category (Agr-oP) available for the object. On the other hand, if we

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11 I omit the derivation of the subject NP. I argue in 4.3 that the agent subject and the object (if any) do not generate in the same VP. The agent subject NP is generated outside the lower VP.

12 I take the negative as a kind of stative predicate taking VP as its complement, arguably on a par with other such adjectives as *yasu-* ('easy') and *niku-* ('difficult'). The stativity of a negative predicate is illustrated by the following example:

(i) a. Taroo-ga *1-zikan/1-zikan-de ki-ta
Taro-Nom 1-hour 1-hour-in come-Perf
'Taro came *for an hour/in an hour'

b. Taroo-ga 1-zikan/*1-zikan-de ko-nak-atta
Taro-Nom 1-hour 1-hour-in come-Neg-Perf
'Taro did not come for an hour/in an hour'

(ia) shows that the durative temporal adverb *1-zikan* (*'for an hour'*) cannot cooccur with the verb *kur* ('come') since the verb denotes an instantaneous event (achievement verb). In (1b), on the other hand, the durative adverb can occur with the same verb plus the negative, which shows the negative is creating a predicate denoting a durative event of Taro's being not here. That negative sentences in Japanese semantically involve stativity, in contrast to corresponding affirmative sentences is shown in Jakobsen (1994).

were to assume (28) for (26a), where the negative takes Agr-oP as its complement, the impossibility of the Accusative Case on the object NP in (26) would be left as a mystery. The object NP could move to [Spec Agr-oP] where its Accusative Case feature would be checked.

(28) [[[[hon-o yom $_{VP}$] Agr-o $_{Agr\text{-}oP}$] [-ana $_{A\ (or\ Neg)}$] $_{AP\ (or\ NegP)}$] -sa $_{NP}$]

One might argue that the negative head does not select Agr-oP just when its projection (AP or NegP) is in turn selected by N (the nominalizer *-sa*). But this somewhat stipulative solution would create a recalcitrant problem of how the "Agr-oP selecting" property of the negative is suppressed only in this case.

Thus it is reasonable to suppose that in Japanese the negative projection is selected by Agr-o and in turn selects a VP as its complement.

4. The Analysis

Having observed some relevant facts of Neg-QP scope interaction and discussed the syntactic structure of Japanese negative sentences as well, we are now at a point where we can give a coherent account of the relevant facts. I propose that the relative scope order of a negative and a QP is determined by the LF hierarchical order of the elements entering into scope interaction. The relevant hierarchical order at LF, in turn, is determined solely on the basis of the syntactic positions that the elements reach as a result of the formal syntactic movements that are induced by the "morphological requirement" in the sense of the Minimalist framework (Chomsky (1993, 1995)). What counts as a "formal syntactic movement induced by the morphological requirement" includes movement of argument NPs for feature-checking and X^0-movement. This leaves controversial the status of the QR, which has been much appealed to for accounting for scope interaction phenomena. Since the account in what follows does not rely on this LF operation, let us discuss its status in the present theory first.

4.1 On Quantifier Raising

I take sides with the view that the UG does not have QR as a syntactic operation. The reason for this view has already been discussed in the literature (Kitahara (1992)). QR, as such, is clearly not an operation that is induced by any morphological (or feature-checking) requirements. Rather, QR has been assumed to be an operation to move a QP just to guarantee the "scope taking" property of the QP in the syntactic component of the grammar and to make the resulting syntactic structure "transparent enough" to be mapped onto the semantic representation. If a syntactic movement may occur only when they are "required" to do

so, as the guiding principle of the Minimalist framework has it, then we must exclude QR from the repertoire of syntactic operations in the grammar.[13]

In order to substantiate this purely conceptual claim, one need to be able to account for the empirical facts that QR might otherwise be responsible for. If one can achieve this, it will give empirical support to the claim that QR does not exist in the grammar. The following discussion is devoted to part of this task.

4.2 Scope of Object QP and Negative

Let us now turn to the task of providing accounts of the facts that we saw in Section 1. First consider again the scope interpretations of the object QP and its clausemate negative:

(29) Taroo-wa subete-no hito-o seme-nak-atta (=(1a))
Taro-Top all-of person-Acc blame-Neg-Perf
'Taro did not blame all the people'

As we have observed, this sentence is ambiguous between the ALL>NOT and the NOT>ALL interpretation. Part of its LF structure is given as follows:

(30) ...$[_{Agr\text{-}oP}\ [_{NP}$ subete-no hito-o$]_{OBJ}\ [_{Agr\text{-}o'}\ [_{AP}\ [_{VP}\ t_{OBJ}\ t_V\ ]\ t_{V+A}\ _{AP}]$
$[$seme-na$_{V+A}]\ _{Agr\text{-}o'}]]$..

The object QP is moved to [Spec Agr-oP], where its Case feature is checked against the Case feature of the verb having been raised to Agr-o. I assume the Scope Principle of Aoun and Li (1989) as the principal condition for the determination of scope relations:

(31) *Scope Principle*:
X can take scope over Y iff X c-commands a member of the chain headed by Y.

The definition of *c-command* is given as:

(32) *c-command*:
X *c-commands* Y iff the first branching node dominating X also dominates Y. (Reinhart (1983))

In (30) the object QP in [Spec Agr-oP] c-commands the whole chain of the negative (A). This ensures the wide scope reading of the object QP over the negative. At the same time, the negative c-commands the trace of the object, which makes it possible for the negative to take wide scope over the object.

Then consider cases where there is a clause boundary between the object and the negative:

(33) a. boku$_i$-wa [e_i subete-no ryoori-o tabe-yoo-to] omow-ana-i
I-Top all-of dish-Acc eat-Mod-Comp think-Neg

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[13] But see Fox (1995), who argues for the existence of the QR. Discussion of Fox's proposals would be too lengthy to accommodate in this paper and I have to leave this for further study.

'I do not intend to eat all the dishes' (NEG>ALL)

b. boku-wa [Aya-ga subete-no ronbun-o yon-da-to] omow-ana-i
I-Top Aya-Nom all-of paper-Acc read-Comp think-Neg
'I do not think that Aya read all the papers' (NEG>ALL)

The relevant part of the LF structure of (33a), for example, is given as follows:[14]

(34) $[_{Agr\text{-}oP1}\ [_{AP}\ [_{VP1}\ [_{CP}\ [_{IP}\ e\ [_{Agr\text{-}oP2}$ [subete-no ryoori-o] $[_{Agr\text{-}o'2}\ [_{VP2}\ t_{OBJ}\ t_{V2}\ ]_{VP2}]$ $tabe_{V2+Agr\text{-}o\ Agr\text{-}o'2}]_{Agr\text{-}oP2}]$ yoo] to $_{CP}]$ $t_{V1\ VP1}]$ $t_{A\ AP}]$ $[omow\text{-}ana_{V1+A+Agr\text{-}o1}]_{Agr\text{-}oP1}]$

In (33), the object QP in the complement clause can only take narrow scope with respect to the matrix negative. This is just as predicted. In (34) the negative (A) asymmetrically c-commands the object QP in the Spec of the lower Agr-o. The object in the complement clause cannot be raised into the Spec of the matrix Agr-o, since it would violate the Shortest Move Condition (Chomsky (1993)), which requires that an element can only move to the minimally accessible position.

Now consider again the following causative sentences:

(35) (=(9))

a. boku-wa $Taroo_i$-ni [e_i subete-no ryoori-o tabe]-sase-nak-atta
I-Top Taro-Dat all-of dish-Acc eat cause-Neg-Perf
'I did not let Taro eat all the dishes'

b. Taroo-wa Aya_i-ni [e_i subete-no sara-o araw]-ase-nak-atta
Taro-Top Aya-Dat all-of plate-Acc wash-cause-Neg-Perf
'Taro did not make Aya wash all the plates'

As we observed, the examples in (35) are ambiguous between the ALL>NEG and the NEG>ALL reading. This suggests that the complement clause of the causative verb *sase* is "less opaque" than the complement clause in (33). In terms of the present analysis, the matrix [Spec Agr-oP] must be accessible to the embedded object. I assume the following (pre-Spell-Out) structure for the causative construction in Japanese:

(36) [[boku-wa]$[_{Agr\text{-}oP}\ [_{AP}\ [_{VP1}$ [Aya-ni] $[_{V'1}\ [_{VP2}$ [subete-no sara-o] araw $_{VP2}]$ -ase $_{V'1}]$ $_{VP1}]$ -anak $_{AP}]$ Agr-o $_{Agr\text{-}oP}]$ atta]

What is crucial here is that the causative verb takes a bare VP as its "complement clause." In fact, I would like to propose that a causative sentence in Japanese is derived on the basis of the "VP-shell" (cf. Larson (1988)) structure for a simplex sentence, where the two verb positions are each filled by a lexical item and the lower shell of the set of VP-shells corresponds to what has been regarded in the literature as the "complement clause" of a causative sentence.

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[14] Despite Pollock's (1988) and Chomsky's (1988) proposal of splitting IP into Agr(-s)P and TP, I use the conventional notation of IP when the notation is irrelevant to the discussion.

At LF, the object of the verb *araw* is raised to the "matrix" [Spec Agr-oP] since this is the only Case-checking position in the sentence for the object. The LF structure of (36) is represented as follows:

(37) [[boku-wa] $[_{Agr\text{-}oP}$ [subete-no sara-o]$_{OBJ}$ $[_{AP}$ $[_{VP1}$ [Aya-ni] $[_{V'1}$ $[_{VP2}$ t_{OBJ} $t_{V2\ VP2}]$ $t_{V2+V1\ V'1}]$ $_{VP1}]$ $t_{V2+V1+A\ AP}]$ [araw-ase-nak $_{V1+V2+A+Agr\text{-}o}]$ $_{Agr\text{-}oP}]$ atta]

In (37), the raised object in [Spec Agr-oP] c-commands the negative and the negative c-commands the trace created by the movement of the object. Thus by the Scope Principle we can correctly predict that either the object or the negative can take wide scope over the other.

This account of the scope facts in (35) indeed crucially relies upon the assumed syntactic structure of the causative in (36). Since (36) also constitutes part of my proposal, the account of the scope facts in (35) should be supported by independent empirical motivations or consequences.

In fact there is good reason to believe the adequacy of the proposed structure in (36). The structure in (36) can give a straightforward account of the effect of "the Double *o* Constraint" (Harada (1973)), a constraint prohibiting multiple occurrences of accusative object in a causative sentence as in (38):

(38) Taroo-wa Aya*-o/-ni hon-o kaw-ase-ta
Taro-Top Aya*-Acc/-Dat book-Acc buy-cause-Perf
'Taro made Aya buy a book'

The question that we should ask is why this constraint exists in Japanese. We can now answer this question by giving a principled account to this effect as follows. Consider the pre-spell-out structure of (38) in (39):

(39) [[boku-wa] $[_{Agr\text{-}oP}$ $[_{VP1}$ [Aya-o] $[_{VP2}$ [hon-o] kaw $_{VP2}]$ ase $_{VP1}]$ Agr-o $_{Agr\text{-}oP}]$ ta]

At LF, the accusative logical subject *Aya-o* raises to [Spec Agr-o] in order to have its Case feature checked off. Likewise, the accusative object *hon-o* moves to the same position for the same reason. However, since Japanese only allows a single NP to be checked in [Spec Agr-oP], this derivation will crash at LF. That [Spec Agr-o] can only accommodate one NP is illustrated by the following example:

(40) *Taroo-ga Ziroo-o atama-o nagutta
Taro-Nom Ziro-Acc head-Acc hit-Perf
'Taro hit Ziro on the head'

In other words, the prohibition against the multiple occurrences of the accusative in a Japanese causative sentence can be explained away with the same restriction that accounts for the impossibility of multiple accusative in a simplex sentence.[15]

Having looked at three cases of scope interaction between the object and the negative, let us turn to still another such case, namely the scope interaction of the object and the negative in so-called *te iru* sentences. Consider again the following examples:

(41) (=(11))

a. Taroo-ga subete-no hito-o seme-te i-nak-atta
Taro-Nom all-of person-Acc blame-Ger be-Neg-Perf
'Taro was not blaming all the people' (NEG>ALL)

b. Aya-ga subete-no hito-o mi-te i-nak-atta
Aya-Nom all-of person-Acc look-Ger be-Neg-Perf
'Aya was not looking at all the people' (NEG>ALL)

We observed in Section 1 that the object QP cannot take scope broader than the negative, in contrast to the following sentence without *te iru* , which is ambiguous between the ALL>NEG and the NEG>ALL reading:

(42) Taroo-ga subete-no hito-o seme-nak-atta
Taro-Top all-of person-Acc blame-Neg-Perf
'Taro did not blame all the people' (ambiguous)

We have already observed that the object in a complement clause cannot take wide scope over the matrix negative. If this is so, the fact in (41) may suggest the presence of a clause boundary between the object QP and the negative. Let us assume that (41a) has the following pre-Spell-Out structure:

(43) $[_{IP1}$ Taroo$_i$-ga $[_{Agr\text{-}oP1}$ $[_{AP}$ $[_{VP1}$ $[_{IP2}$ t_i $[_{Agr\text{-}oP2}$ $[_{VP2}$ [subete-no hito-o] seme-$_{VP2}]$ $_{Agr\text{-}oP2}]$ te $_{IP2}]$ i $_{VP1}]$ nak $_{AP}]$ $_{Agr\text{-}oP1}]$ atta $_{IP1}]$

What is characteristic of the assumed structure of *te iru* sentences is that the verb *ir* (*'be'*) takes an infinitival complement clause that contains a lexical verb and its

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15 Masaki Sano (p.c.) has brought to my attention the fact that the complement clause of a causative can accommodate a negative (cf. Kuroda (1990)), despite the proposed structure in (37), where a bare VP is subordinated to the higher VP:

(i) Taroo-wa Hanako-ni tabako-o suw-anaku-sase-ta
Taro-Top Hanako-Dat tabacco-Acc smoke-Neg-cause-Perf
'Taro made Hanako not-smoke cigarettes'

Interestingly, this type of causative can violate the Double *o* Constraint:

(ii) ?Taroo-wa Hanako-o tabako-o suw-anaku-sase-ta
Taro-Top Hanako-Acc tabacco-Acc smoke-Neg-cause-Perf
'Taro made Hanako not-smoke cigarettes' (Masaki Sano (p.c.))

This suggests that the syntactic structure of this causative is distinct from that in (37) and has a more articulated structure in the embedded clause: the complement clause of (ii) crucially has Agr-oP, which in turn selects an AP and in which the lower object is Case-checked.

object.[16] The 'biclausality' of *te iru* sentences can be supported by the fact that there are two different positions for a negative to occur. A negative can also immediately follow the embedded lexical verb as well as the matrix verb *ir(u)*, as we can see in the following examples:

(44) a. Taroo-wa hon-o yom-anai-de i-ta
Taro-Top book-Acc read-Neg-Ger be-Perf
'Taro was not-reading a book'

b. Ziroo-wa sake-o nom-anai-de i-ta
Ziro-Top sake-Acc drink-Neg-Ger be-Perf
'Ziro was not-drinking sake'

This fact immediately follows from (43). The embedded Agr-o can also select AP, the projection of the negative, which in turn selects VP.

Now it is clear why the object QP cannot take scope over the negative in (41). The LF structure of (41a), for example, is represented as follows:

(45) $[_{IP1}$ Taroo$_i$-ga $[_{r'1}$ $[_{Agr\text{-}oP1}$ $[_{AP}$ $[_{VP1}$ $[_{IP2}$ t_i $[_{Agr\text{-}oP2}$ [subete-no hito-o]$_{OBJ}$ $[_{VP2}$ t_{OBJ} $t_{V2\ VP2}]$ seme $_{Agr\text{-}oP2}]$ -te $_{IP2}]$ $t_{V1\ VP1}]$ $t_{V1+A\ AP}]$ $t_{V1+A+Agr\text{-}o1\ Agr\text{-}oP1}]$ [i-nak-atta $_{V1+A+Agr\text{-}o1+I1}]$ $r'1]$ $_{IP1}]$

At LF, the object raises to [Spec Agr-oP] in the complement clause: it cannot move to the matrix [Spec Agr-oP] since it would violate the Shortest Movement Condition. Then the negative asymmetrically c-commands the object so that by the Scope Principle the negative must take wide scope over the object.[17]

This account predicts that the object can take scope over the negative attached to the embedded lexical verb in such sentences as those in (46), since the object crosses over the underlying position of the embedded negative in the course of raising to the [Spec Agr-oP] position of the complement clause, as shown in (47). Consider:

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[16] That *te iru* sentences have a biclausal structure has already been proposed in Nakau (1973) and Terada (1991). We also follow their proposal that *ir* is a raising verb on a par with such English raising predicates as *seem, appear, be likely,* and *be certain* so that the subject of a *te iru* sentence derives via NP-movement from the complement subject position to the matrix subject position. We return to this in the next section.

[17] We saw in Footnote 10 that the QP indeed may take scope over the negative if *te iru* denotes perfectivity. I would like to solve this by saying that for a reason that is not clear to me yet the object in the case of perfective *te iru* raises to a position high enough to c-command the matrix negative. This "extra object raising" is supported by the following data involving a floated quantifier. Observe the following:

(i) gakusei-ga sake-o 3-nin non-de ita
student-Nom sake-Acc 3-Cl drink was
'Three students were drinking/had drunk sake'

This sentence, where the floated numeral and its host NP are separated by the object, is fine only under the perfective reading of *te iru* ("Three students had drunk sake."). This independently suggests that with perfective *te iru* the object undergoes raising to a position somewhere in the matrix clause.

(46) a. Taroo-wa subete-no hito-o seme-nai-de i-ta
Taro-Top all-of person-Acc blame-Neg-Ger be-Perf
'Taro refrained from blaming all the people'

b. Aya-wa subete-no hon-o yom-anai-de i-ta
Aya-Top all-of book-Acc read-Neg-Ger be-Perf
'Aya was not-reading all the books'

(47) $[_{IP1}$ Taroo$_i$-ga $[_{AP}$ $[_{VP1}$ $[_{IP2}$ t_i $[_{Agr\text{-}oP2}$ [subete-no hito-o]$_{OBJ}$ $[_{VP2}$ t_{OBJ} $t_{V2\ VP2}]$ $t_{V2+A\ AP}]$ [seme-nai $_{V2+A+Agr\text{-}o}]$ $_{Agr\text{-}oP2}]$-de $_{IP2}]$ $t_{V1\ VP1}]$ $t_{V2+A\ AP}]$ i-ta $_{IP1}]$

As predicted, the sentences in (46) are both ambiguous between the ALL>NEG and the NEG>ALL reading.

4.3 Scope of Subject QP and Negative

Having looked at the analysis of the scope interaction of an object and a negative, let us turn to the account of the relative scope of a subject QP and a negative. Consider the following examples again:

(48) Subject of an agentive sentence:
subete-no hito-ga Taroo-o seme-nak-atta
all-of person-Nom Taro-Acc blame-Neg-Perf (=(3))
'All the people didn't blame Taro' (ALL>NEG)

(49) Subject of a passive sentence:
subete-no gakusei-ga (Ziroo-niyotte) nagur-are-nak-atta
all-of student-Nom Ziro-by hit-Pass-Neg-Perf
'All the students weren't hit (by Ziro)' (=(5)) (ambiguous)

(50) Subject of an unaccusative verb:
subete-no ki-ga taore-nak-atta
all-of tree-Nom fall-Neg-Perf
'All the trees didn't fall down' (ambiguous)

(51) Subject of a *te-iru* sentence:
subete-no kodomo-ga kame-o izime-te i-nak-atta
all-of child-Nom turtle-Acc bully-Ger be-Neg-Perf
'All the children weren't bullying the turtle' (ambiguous)

As we saw earlier, the possibility for the subject QP to take narrower scope than the negative depends on the type of predicate: the subject of an agentive verb in (48) can only take wide scope over the negative while in (49), (50), and (51) the subject can take narrow scope.

These data suggest that the subject of agentive predicates such as *Taroo-o semer(u)* ('blame Taro') is not derived via NP-movement from a VP-internal position as assumed by versions of VP-internal subject hypothesis (Fukui (1986),

Kuroda (1988), Koopman and Sportiche (1988) etc.), while the subject of unaccusatives and passives is moved from a VP-internal position.

This point is argued for in Nakayama and Koizumi (1991), Koizumi (1993), and Tateishi (1994), in which they provide several pieces of empirical evidence against the claim of VP-internal subject hypothesis that all subjects are generated under VP. Let us consider the following examples from Nakayama and Koizumi (1991), which each have a QP subject and a quantificational temporal adjunct:

(52) a. daremo-ga [2-zi ka 3-zi]-ni syorui-o teesyutusita
everyone-Nom 2-hour or 3-hour-at document-Acc hand in-Perf
'Everyone handed in the document at two or three o'clock'

b. daremo-ga [2-zi ka 3-zi]-ni sinda
everyone-Nom 2-hour or 3-hour-at die-Perf
'Everyone died at two or three o'clock'

c. daremo-ga [2-zi ka 3-zi]-ni John-niyotte
everyone-Nom 2-hour or 3-hour-at John-by
syookais-are-ta
introduce-Pass-Perf
'Everyone was introduced to John at two or three o'clock'

(Nakayama and Koizumi (1991))

The sentences (52b) and (52c) are ambiguous with respect to the scopal interpretation of the subject QP and the adjunct: the subject can either take wider or narrower scope than the adjunct. On the other hand, the subject of the agentive sentence in (52a) can only take wide scope over the adjunct. Hoji (1985) shows that a QP can take scope another QP c-commanding it only if the former c-commands a trace of the latter at S-Structure. If this is correct, and if a temporal adjunct is located at the left peripheral position in VP, then, as Nakayama and Koizumi argue, the subject in (52b,c) has its trace inside VP while that in (52a) does not. This means that the subject of an agentive predicates generates outside VP, while the subject of unaccusative and passive predicates generates inside VP and raises to its surface position.

Now we can make it clear why there is an "agentive" vs. "non-agentive" contrast with respect to the possibility of the subject taking narrower scope than the negative. Consider the following LF structure of (48):

(53) LF of (48):

$[_{Agr\text{-}sP}$ [subete-no hito-ga]$_{SUBJ}$ $[_{Agr\text{-}s'}$ $[_{VP1}$ t_{SUBJ} $[_{V'1}$ $[_{Agr\text{-}oP}$ [Taroo-o]$_{OBJ}$ $[_{AP}$ $[_{VP2}$ t_{OBJ} $t_{V\ VP2}]$ $t_{V2+A\ AP}]$ $t_{V2+A+Agr\text{-}o\ Agr\text{-}oP}]$ [seme-nak-atta $_{V2+A+Agr\text{-}o+V1}$] $_{V'1}]$ $_{VP1}]$ $_{Agr\text{-}s'}]$ $_{Agr\text{-}sP}]$

I assume that the subject of an agentive sentence is generated in the Spec of the higher VP (VP1) whose head selects Agr-oP as its complement (Koizumi (1993), cf. Chomsky (1995), Hale and Keyser (1993, 1997), Kratzer (1994)). I take this higher VP as what can also be termed as Aspectual Phrase, whose head, morphologically realized as *ta* ("perfect") or *(r)u* ("imperfect"), assigns Agent to the NP in its Spec position.[18]

Furthermore, I assume that Japanese lacks a morphological tense marker and that *ta* denotes perfectivity.[19] This in turn amounts to saying that the verb, along with the negative, does not raise to T or Agr-s, since there is no tense feature to be checked off.[20,21] That *ta* is a perfective marker, not a tense marker, is not an unreasonable claim since in some cases *ta* does not have a definite reference to some point in the past (cf. Nakau (1976)), which is the referential property of English past tense marker *-ed*:

(54) [boosi-o kabut-ta] syoonen-ga koko-ni iru
hat-Acc put on-Perf boy-Nom here-Dat is
'A boy who is wearing a hat is here' (Nakau (1976))

The subject of this sentence does not refer to a boy who wore or put on a hat at some temporal point in the past. Rather, it refers to a boy in a state after having put on a hat. The boy must be wearing a hat at the temporal point (the speech time) referred to by the sentence. In this respect (54) differs in the truth condition from the following English sentence with the past tense in the relative clause of the subject, in that in (55) the boy need not be wearing a hat at the speech time:

(55) The boy who wore/put on a hat is here.

A question arises as to cases where *ta* obviously refers to a definite point in the past:

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18 One can also assume the light verb *v* of Chomsky (1995) or the Agent-taking head (V) of Hale and Keyser (1993, 1997) without much affecting the present analysis.

19 The semantic property of *ta/ru* has been much debated in the literature. For the view that *ta* denotes perfectivity, see Ando (1982) and Narita (1991) and the references cited there.

20 An anonymous TES reviewer has pointed out that if Japanese lacks Tense feature, a question arises as to what assigns the Nominative Case to the subject or what checks the Nominative feature of the subject. The following example suggests that it is not Tense that checks the Nominative:

(i) kuruma-ga sookoo-tyuu-ni zisin-ga okotta
car-Nom run-while-Dat earthquake-Nom happened
'An earthquake happened while the car was running'

A nominative appears without the presence of "Tense" in the clause of *tyuu-ni*. A possible candidate for the Nominative Case checker would be some aspect-related category since *tyuu* expresses duration, which is an aspectual property of an event. A technical implementation of this idea is beyond the scope of this paper, however.

21 An anonymous TES reviewer points out the possibility that there is no projection of T(ense) in Japanese if Japanese does not have a tense marker. This is consistent with the proposal in the text: if the structure lacks T, there will simply be no place for the verb to raise to for checking.

(56) boku-wa 5-zi-ni yuusyoku-o tabe-ta
I-Top 5-hour-at dinner-Acc eat-Perf
'I ate dinner at 5 o'clock'

We can still maintain our claim, however, since this referential property of *ta* is also seen with the English auxiliary *have* that occurs with past perfect, modals, infinitives, and gerunds, though it is not seen with finite present perfect:

(57) Sam had finished his paper *yesterday*. (Heny (1982))
(58) Bill may have been in Berlin *before the war*. (Comrie (1976))
(59) The security officer believes Bill to have been in Berlin *before the war*. (ibid.)
(60) Having been in Berlin *before the war*, Bill is surprised at the many changes. (ibid.)
(61) *John has left *at four*.

This referential property is also shared by the perfect auxiliary in some Romance and Germanic languages (Giorgi and Pianesi (1997)):

(62) Italian:
Ho mangiato *alle 4*.
I-have eaten at-the 4
'I ate at 4 o'clock'
(63) Spanish:
Me he levantado *a las seis*.
myself I-have woken at the six
'I got up at six'
(64) German:
Ich bin um vier abgefahren
I have at four left
'I left at four'

Thus it is not unreasonable to claim that the Japanese *ta* corresponds to the perfective auxiliary in the languages in (62-64). A difference between Japanese and these languages is that the former lacks the tense marker that the latter possess.

With the above assumption in mind, let us return to the main stream of the analysis. In (53), the subject raises to [Spec Agr-sP] in order to have its Case feature checked. Then the subject c-commands (the whole chain of) the negative, but the negative fails to c-command any member of the subject chain since it does not move beyond the higher V, where the perfective marker *ta* is found. Thus by

the Scope Principle we correctly predict that the sentence is unambiguous, having only the ALL>NEG reading.[22]

Now consider the LF structure of (49) and (50):

(65) LF of (49):

$[_{Agr\text{-}sP}$ [subete-no hito-ga]$_{SUBJ}$ $[_{TP}$ $[_{VP1}$ $[_{Agr\text{-}oP}$ $[_{AP}$ $[_{VP2}$ t_{SUBJ} t_{V} $_{VP2}]$ t_{V2+A} $_{AP}]$ $t_{V2+A+Agr\text{-}o}$ $_{Agr\text{-}oP}]$ [seme-rare-nak-atta $_{V2+A+Agr\text{-}o+V1}]$ $_{VP1}]$ t_{T} $_{TP}]$ [T+Agr-s] $_{Agr\text{-}s'}]$ $_{Agr\text{-}sP}]$

(66) LF of (50):

$[_{Agr\text{-}sP}$ [subete-no ki-ga]$_{SUBJ}$ $[_{TP}$ $[_{VP1}$ $[_{Agr\text{-}oP}$ $[_{AP}$ $[_{VP2}$ t_{SUBJ} t_{V} $_{VP2}]$ t_{V2+A} $_{AP}]$ $t_{V2+A+Agr\text{-}o}$ $_{Agr\text{-}oP}]$ [taore-nak-atta $_{V2+A+Agr\text{-}o+V1}]$ $_{VP1}]$ t_{T} $_{TP}]$ [T+Agr-s] $_{Agr\text{-}s'}]$ $_{Agr\text{-}sP}]$

In contrast to (53), the subject in (49) (passive) and (50) (unaccusative) is derived via NP-movement from the object position. The subject ultimately ends up being

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22 In Footnote 5, I briefly pointed out that the subject of a transitive verb can take narrower scope than the negative in certain environments. One such case is the environment where the negative clause is embedded, as in (Homma 1989, 1992):

(i) subete-no hito-ga Taroo-o sizisi-nak-atta-ra, ...
all-of person-Nom Taro-Acc support-Neg-Perf-if
'If all the people don't support Taro, ...' (ambiguous)

(ii) [subete-no hito-ga Taroo-o sizisi-nak-atta-koto-wa mondai-da
all-of person-Nom Taro-Acc support-Neg-Perf-fact-Top problem-is
'The fact that all the people didn't support Taro is a problem' (ambiguous)

One way to deal with these facts is to say that all the heads, including V and A (*nai*), are attracted to C because of its morphological requirement so that the negative is raised across the subject.

Secondly, the agentive subject can take narrow scope with respect to the negative when another major constituent is scrambled in front of the subject:

(iii) Taroo-o subete-no hito-ga sizisi-nak-atta
Taro-Acc all-of person-Nom support-Neg-Perf

A solution would be to say that scrambling is in fact not an optional rule but is a feature-driven movement (Miyagawa (1997) among others) and that the feature attracting the scrambled phrase also attracts the verb. Then when a constituent is scrambled, the verb raises to a position higher than the subject along with the negative, enabling the negative to c-command the subject.

Thirdly, the negative seems to be able to take wide scope over the transitive subject if the subject is not interpreted as a typical agent. Consider the following sentences:

(iv) a. subete-no otoko-ga (tikarazuku-de) densya-o tome-nak-atta
all-of man-Nom force-by train-Acc stop-Neg-Perf
'All the men didn't stop trains (by force)'

b. subete-no taihuu-ga densya-o tome-nak-atta
all-of typhoon-Nom train-Acc stop-Neg-Perf
'All the typhoons didn't stop trains'

I find that the subject QP is significantly easier to interpret as taking narrower scope than the negative in (ivb). A minimal difference between (iva) and (ivb) is that (ivb) involves a nonagent subject NP whereas (iva) has a typical agentive subject. The subject in (ivb) is definitely not an agent since it does not denote a human being. Rather it is appropriate to regard it as the "causer" of the event of trains' stopping. This amounts to saying that the subjects in (iva) and (ivb) each have distinct theta-roles: the subject in (iva) has Agent, while that in (ivb) has Causer. Fujita (1996) convincingly argues that while the agentive subject is generated in the higher VP, the causer subject is generated in the lower VP. If this is correct, we can nicely capture the interpretive difference in (iv). The trace of the causer subject is c-commanded by the negative and this is why (ivb) has the NOT>ALL reading.

in [Spec Agr-sP] to have its Nominative feature checked. Then, as we see in (65) and (66), the subject c-commands the negative and the negative chain c-commands the tail of the subject chain. Thus by the Scope Principle we can correctly predict that the sentences in (49) and (50) are ambiguous with respect to the relevant interpretations.

The fact that the examples in (51) are ambiguous suggests that the base position of the subject in these examples is c-commanded by the negative. Following Nakau (1973) and Terada (1990), I have assumed that the *te-iru* construction has a biclausal structure and that the subject is derived via NP-movement from the subject position in the complement clause:

(67) $[_{Agr\text{-}sP}\ NP_{SUBJ}\ [_{TP}\ [_{VP1}\ [_{IP}\ t_{SUBJ}\ [_{Agr\text{-}oP}\ [_{VP2}\ \cdots]]]\ iru\ _{VP1}]]]$

If this is so, the ambiguity of the sentence in (51) can be straightforwardly accounted for. Consider the following LF of (51):

(68) $[_{Agr\text{-}sP}$ [subete-no kodomo-ga]$_{SUBJ}$ $[_{TP}\ [_{AP}\ [_{VP1}\ [_{IP}\ t_{SUBJ}\ [_{Agr\text{-}oP}$ [kame-o]$_{OBJ}$ $[_{VP2}\ t_{OBJ}\ t_{V2\ VP2}]\ t_{V2+Agr\text{-}o\ Agr\text{-}oP}]\ _{IP}]\ t_{V1\ VP1}]\ t_{V1+A\ AP}]$ [i-nak-atta]] $_{Agr\text{-}sP}]$

The subject NP, although it is raised into the Spec of the matrix Agr-s at LF (or by the spell-out), is generated in the subject position in the complement clause. Thus the negative c-commands the trace of the subject and conversely, the subject c-commands the negative.

This account of the relative scope order of the subject QP and the negative in the *te-iru* construction crucially depends upon the assumption that the matrix verb *ir(u)* is a raising verb and the subject NP is derived via NP-movement from the embedded subject position.[23] A natural question to ask at this point is whether there is any empirical evidence for this assumed derivation of the subject in the *te-iru* construction. This assumption is indeed supported by the following scope test. Consider:

(69) a. daremo-ga [2-zi ka 3-zi]-ni hon-o yon-de i-ta
everyone-Nom 2-hour or 3-hour-at book-Acc read be-Perf
'Everyone was reading a book at 2 or 3 o'clock'

b. daremo-ga [2-zi ka 3-zi]-ni hon-o yon-da
everyone-Nom 2-hour or 3-hourk-at book-Acc read-Perf
'Everyone read a book at 2 or 3 o'clock'

Both sentences have a subject QP (*daremo-ga*) and a quantified temporal adjunct (*2-zi ka 3-zi-ni*). (69b) has only one reading with respect to the relative scope order of the subject and the temporal adjunct: the subject has to take wide scope

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[23] We saw in Footnote 7 that the subject cannot take narrower scope than the negative if *te iru* denotes duration of a result. We must say, following Mihara (1997), that the subject in this case is base-generated in the matrix clause. The reason for this derivational distinction has to be left for future research.

over the temporal adjunct so that the sentence can only be interpreted in such a way that for each person *x*, 2 o'clock or 3 o'clock is the time at which *x* did book-reading. This is expected if we assume, as we have assumed earlier, that (69b) has the following structure:

(70) $[_{Agr\text{-}sP}$ [daremo-ga]$_{SUBJ}$ $[_{TP}$ $[_{VP1}$ t_{SUBJ} $[_{Agr\text{-}oP}$ [hon-o]$_{OBJ}$ $[_{VP2}$ [2-zi ka 3-zi-ni] $[_{VP2}$ t_{OBJ} $t_{V2\ VP2}]$]]]] (Traces of heads omitted.)

The subject, as well as its trace, c-commands the temporal adjunct, but the latter does not c-command the former. Thus by Hoji's (1985) generalization we can correctly predict the nonambiguity of (69b).

In sentence (69a), by contrast, there is indeed an interpretation where the temporal adjunct takes wide scope, as well as the wide scope interpretation of the subject. Thus the sentence can be construed in such a way that 2 o'clock or 3 o'clock is the point of time when all the people were involved in book-reading. This is expected if we assume the following structure for (69a):

(71) $[_{Agr\text{-}sP}$ [daremo-ga]$_{SUBJ}$ $[_{TP}$ $[_{VP1}$ [2-zi ka 3-zi-ni] $[_{VP1}$ $[_{IP}$ t_{SUBJ} $[_{Agr\text{-}oP}$ [hon-o]$_{OBJ}$ $[_{VP2}$ t_{OBJ} $t_{V2\ VP2}]]]]]$ ita] $_{Agr\text{-}sP}]$ (Traces of heads omitted.)

In (71), the "surface" order of the subject QP and the temporal adjunct is just the reverse of their "underlying" order. Thus by Hoji's generalization either QP can take wide scope over the other. Notice that in (71) the temporal adjunct has two possible positions for it to be adjoined; the matrix VP (VP1) and the embedded VP (VP2). In the case of (69a), it seems more likely that the temporal adjunct is adjoined to the matrix VP, not to the embedded VP, so as to yield a natural interpretation of the adjunct with respect to the matrix verb denoting the progressive aspect. It is conceivable that an instantaneous event of book-reading was in progress at either 2 or 3 o'clock, but one can hardly imagine what it would be like for an instantaneous event of book reading *at either 2 or 3 o'clock* to be in progress at one specific point of time.

5. English

English exhibits a pattern quite different from Japanese with respect to scope interaction of a QP and a negative. Firstly, the object cannot seem to take wide scope over the clausemate negative, unlike Japanese, in which the object can take wider scope than the clausemate negative:

(72) a. John didn't kiss every woman at the party. (Hornstein (1984))

b. Sheila did not introduce every student to his home room teacher. (Hornstein (1987))

(NEG>EVERY, *EVERY>NEG (in both (a) and (b))

This contrast between Japanese and English should be traced to a difference in syntactic properties of the two languages since the form and function of LF interpretive rules, which the language learner cannot have direct access to, should not be cross-linguistically parameterized (Higginbotham (1985), Aoun and Li (1989) etc.).

An answer to the question of why the sentences in (72) are not ambiguous comes from Pollock's and Chomsky's assumption on the hierarchical ordering of the projections in (16), where NegP is located higher than Agr-oP. If this is so, then the LF structure of (72a), for example, is represented as follows:[24]

(73) $[_{\text{Agr-sP}}$ [John]$_{\text{SUBJ}}$ $[_{\text{Agr-s'}}$ $[_{\text{Agr-s+T+Neg}}$ didn't] $[_{\text{TP}}$ $t_{\text{T+Neg}}$ $[_{\text{VP1}}$ t_{SUBJ} $[_{\text{NegP}}$ t_{Neg} $[_{\text{Agr-oP}}$ [every woman]$_{\text{OBJ}}$ $[_{\text{VP2}}$ kiss $t_{\text{OBJ}}]]]]]]$ (Movement of V omitted.)

At LF, the object QP moves to [Spec Agr-oP] to have its Case feature checked off. The negative c-commands the object in [Spec Agr-oP], but the object cannot c-command any member of the chain created by the head movement of the negative. Thus by the Scope Principle we can correctly predict the nonambiguity of the examples in (72).[25]

What about a subject QP and a negative? English seems to differ from Japanese in that the former does not exhibit the agentive vs. nonagentive contrast that the latter exhibits with respect to the scope interaction of a subject and a negative. The following examples seem to be all ambiguous between the EVERY>NEG and the NEG>EVERY reading:[26]

(74) a. Agentive subject:
Everyone didn't kiss Mary.

b. Theme subject:
Everyone didn't come.

c. Passive subject:
Everyone wasn't invited to the party.

Our analysis of the scope interaction of a QP and a negative correctly expects the ambiguity of (74b) and (74c). Now the question is why (74a) is also ambiguous.

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24 (73) is minimally different from Pollock's and Chomsky's structure in that I maintain a version of the split VP hypothesis I pursue in the present paper.

25 An anonymous TES reviewer has pointed out that the well-known ambiguity of *Someone loves everyone.* would be a problem for (73) since the object QP does not move beyond the subject in the present analysis. One possible solution would be to say that the object NP in English undergoes raising to a position high enough to be able to c-command (the trace of) the subject, which is impossible if the negative is present, though it is not clear what triggers this movement. An account of QP/QP scope interaction would go far beyond the scope of the present paper and I would like to leave this for future research.

26 The data have been provided by Yoshio Endo and Chris Tancredi (personal communication).

Notice that as we see in (73), the auxiliary verb attached by the negative (*didn't*) has moved up to Agr-s. This is because the auxiliary has the Tense feature and the Nominative feature that must be checked in T and Agr-s, respectively, in contrast to Japanese, in which the clause-final morpheme *ta* does not have the Tense feature so that it cannot move beyond the higher V. If this is so, then the structure of (74a) is represented as follows:

(75) $[_{Agr\text{-}sP}$ [everyone]$_{SUBJ}$ $[_{Agr\text{-}s'}$ $[_{Agr\text{-}s+T+Neg}$ didn't] $[_{TP}$ t_{T+Neg} $[_{VP1}$ t_{SUBJ} $[_{NegP}$ t_{Neg} $[_{Agr\text{-}oP}$ $[_{VP2}$ kiss Mary]]]]]]

(Movement of V and the object omitted.)

In (75) the negative is carried up beyond the trace of the subject so that the former c-commands a member of the chain of the subject. This ensures the negative being able to take wide scope over the agentive subject as well as the nonagentive subject.

6. Conclusion

In this paper we have given accounts of several facts of scope interaction between a QP and a negative. Our account is minimally based on syntactic properties and hierarchical relations between the elements participating in the relevant phenomena, but not on the rule of Quantifier Raising, a type of movement that arguably is not driven by any syntactic requirement. To the degree this approach is successful, we can say that it is the syntactic properties and the result of syntactically motivated operations that determine the relevant phenomena.

This approach enables us to give a natural account of the interpretive difference that we have observed between English and Japanese, since it must be some variation of the syntactic properties among languages that gives rise to the interpretive variation among them, given that the form and function of interpretive rules are not accessible to language learners and hence cannot be subject to parameterization.

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